

SIPHONAPTERA COLLECTED BY MR. F. SHAW MAYER IN
MANDATED NEW GUINEA.

By DR. KARL JORDAN, F.R.S.

(With 8 text-figures.)

THE collection of Siphonaptera made by Mr. F. Shaw Mayer during his 1932 expedition in Mandated New Guinea is the largest ever recorded from New Guinea. The specimens were obtained from February to December in the Krätke Mts., Buntibasa district, at altitudes varying from 4,000 to 5,000 ft.; the cat-flea was found in numbers on a Mission dog. Altogether 10 species were procured, of which 4 are new, one of them representing a new genus; moreover, the undescribed male of another species was obtained in numbers, and a second specimen of *Stivalius abacetus*, the type of which had remained unique in our collection.

As the collector of mammals in New Guinea has to depend to a very great extent on the help of natives, and as the fleas soon leave a live or dead host if handled too much, we greatly appreciate the success Mr. F. Shaw Mayer has had in spite of such adverse circumstances.

1. *Pulex irritans* L. 1758.

In camp, a small number of both sexes. Presumably an introduction by the white man.

Alaopsylla gen. nov.

♂. Close to *Xenopsylla cheopis* Roths. 1903, but eye absent, being represented only by an internal brown spot.

The genus stands in the same relation to the *cheopis*-subgroup of *Xenopsylla* Glink. 1907 as *Rooseveltiella* Fox 1914 to the *brasiliensis*-subgroup of that genus.

One species.

2. *Alaopsylla papuensis* sp. nov. (text-figs. 3, 4).

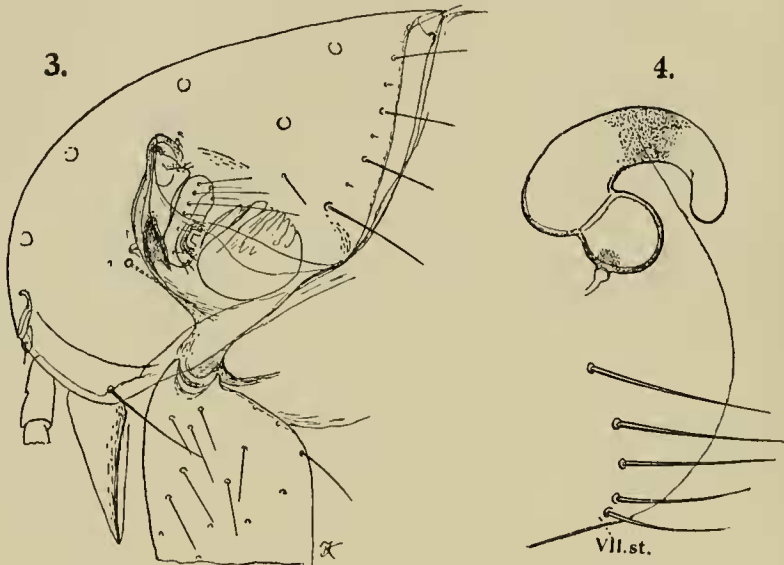
♀. Bristles of head and body nearly all shorter and thinner than in *X. cheopis*, fewer on coxae and femora, proboscis shorter, midtarsal segment II shorter, etc.

On frons a bristle before vestige of eye and another near ventral margin. On occiput a minute bristle at base of antennal groove, a small one in middle and a subapical row of 5 each side, all much smaller than in *X. cheopis*. Proboscis reaching to four-fifths of forecoxa.

The row of bristles contains 14 on pronotum, 13 on mesonotum and 12 on metonotum; mesopleurae with 5 bristles placed as in *X. cheopis*; on metepimerum a row of 5 from stigma downwards and in front of the lower end of the row 1 or 2 bristles.

On abdominal tergites (the two sides together) a row of 14 or 15 bristles on II to VI., and 12 on VII. On sternites III to VII 9 or 10 bristles.

Forecoxa with 22 to 25 bristles on outer surface. On inner side of hindcoxa 3 small spiniforms, on one coxa 4. On hindfemur 2 subventral subapical bristles on outside and from 2 to 4 on inside; the ventral tooth, so strongly developed as a rule in *X. cheopis*, is vestigial. Midtibia with 5 dorsal notches, bearing strong bristles (inclusive of apical notch), above and below postmedian pair a strong bristle each, at apex dorsally 3 strong bristles and a small one; on outer surface 4 or 5 subdorsal bristles. Hindtibia with 6 dorsal notches, apical notch with 3 heavy bristles, subapical one with 1 or 2 bristles, between this and the postmedian pair another stout bristle; 5 or 6 lateral subdorsal bristles inclusive of



apical one; longest apical bristle of hindtarsal segment II reaching to or a little beyond IV. Measurements of foretarsus: 7, 7, 6, 4.5, 11, midtarsus 11, 12, 8, 5.5, 12, hindtarsus 31, 18, 11, 6.5, 14.

Modified segments.—On each side of VIII. t. one large bristle at some distance below stigma, with or without a small bristle farther up, 4 lateral bristles farther down, and a ventral-apical row of 10 to 12, at apical margin on inside a row of 9 or 10, these short with the exception of the bristle at the ventral apical angle. Stylet not quite twice as long as broad (13:7). Bursa copulatrix almost as in *X. cheopis*; head of spermatheca a little smaller and rounder than in *X. cheopis* and the base of the tail more ventricose.

Length: 2.1 mm., hindfemur: 0.45 mm.

On *Pogonomys loriae* Thomat, No. 353, 2 ♀♀.

3. *Ctenocephalides felis felis* Bouché 1835.

A large series from a Mission dog at Kambaidam, 4,000 ft. Introduced; the native race would be *Ct. felis orientis* Jord. 1925, which was not obtained, but which we have from Rook, Dampier, Admiralty and the islands in Geelvink Bay.

4. *Acanthopsylla enderleini* Wagner 1933.

♀. *Akmepsylla enderleini* Wagner, *Mitteil. Zool. Mus. Berlin*, xviii. p. 354, text-figs. 14, 15, 16 (1933) (Mandated N. Guinea, on *Pseudochirops albertisii*).
Acanthopsylla enderleini id., *l.c.* p. 362 (1933) (correction).

Evidently represents *A. gravis* Roths. 1916 in New Guinea. The ♂ differs slightly in the process of the elasper being subapically somewhat more distinctly concave on the posterior side, the apex of the ventral arm of IX. st. narrower, with the proximal bristle on the widened apex larger, the small ventral bristles on the inner surface of VIII. st. more numerous, forming an irregular row from the base of the ventral apical lobe forward, the lateral bristle of X. t. thinner, and the anal pleurites (a distinct sclerite in this genus) with 4 lateral bristles instead of 5. In all the ♀♀ the lobe above the sinus of VII. st. is broader than in *A. pavida*, as pointed out by Wagner, but varies in width; head of spermatheca somewhat shorter.

On *Dactylopsila*, a series; *Distoechurus*, 3 ♀♀; *Phascogale*, 1 ♂. The first mammal is evidently the true host.

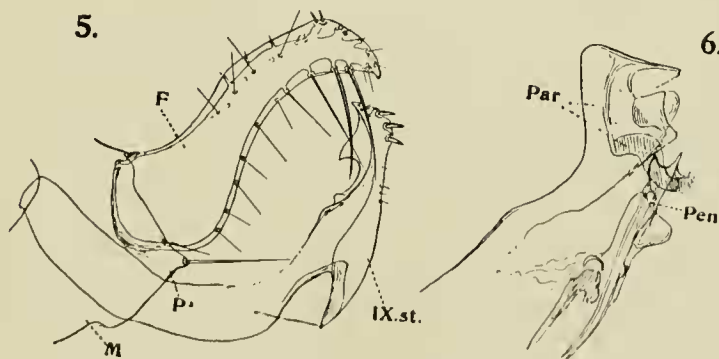
5. *Stivalius mordax* J. & R. 1922.

On *Rattus browni* Alst., No. 302, 7 ♂♂, and *Dasyurus*, 1 ♂.

6. *Stivalius shawmayeri* sp. nov. (text-figs. 5, 6, 7).

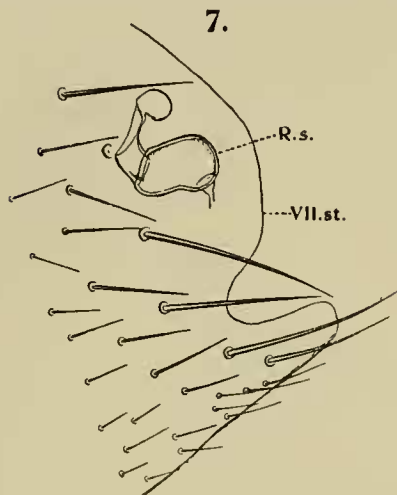
♂♀. Near *St. mordax*; frons less strongly curved, but with some strong bristles; eye somewhat larger, as is also the stigma-cavity of VIII. t.; basal abdominal sternite without lateral bristles, but with some minute pale dots, the sockets of minute hairs.

♂. Apical margin of VIII. st. more distinctly incurved, the ventral angle



therefore less broadly rounded, the most distal ventral bristles smaller. Exopodite F less curved, without a ventral proximal patch of small hairs; three long ventral subapical bristles, which are thinner than in *St. mordax* and stand farther away from the hooked apex, the third thinner than the other two; from this bristle to basal curve of ventral margin a row of about 7 thin short bristles; two short pale dorsal spiniforms close to the highest point. Process P₂ of clasper short, above it a small bristle. Ventral arm of IX. st. curved upwards at tip and

narrowed into a sharp beak, bearing a few minute bristles, proximally of them 3 short ventral spiniforms placed at nearly equal distances from one another on the convex apical portion of the sclerite; dorsally the apical two-fifths of IX. st. compressed, a smooth ridge being formed as in several other species, this ridge widened into a triangular tooth, which is sharp and somewhat curved frontad, on



the frontal side of the tooth a rounded sinus, which gradually becomes shallow anteriorly; the ridge forming anteriorly a small hump. The armature of the penis is much obscured in the specimen, the figure (text-fig. 6) therefore is probably incorrect in several points, dorsal hood of paramere, however, plainly visible, rounded dorsally and truncate apically, being quite different from the evenly curved hood of *St. mordax*.

♀. The lobe of the sinus of VII. st. very broad and almost evenly rounded; the pair of long bristles placed on the lower lobe much more proximal than in *St. mordax*, the upper one of the two farther frontal than the deepest point of the sinus, and the other nearly on a level with that point. Head of sper-

matheca (R.s) slightly wider near apex than near tail, one-half longer than broad.

Length: ♂ 2.0 mm., ♀ 2.2 mm.; hindfemur: ♂ 0.36 mm., ♀ 0.40 mm.

On *Dorcopsis*, 1 ♂, type; *Peroryctes*, 1 ♀.

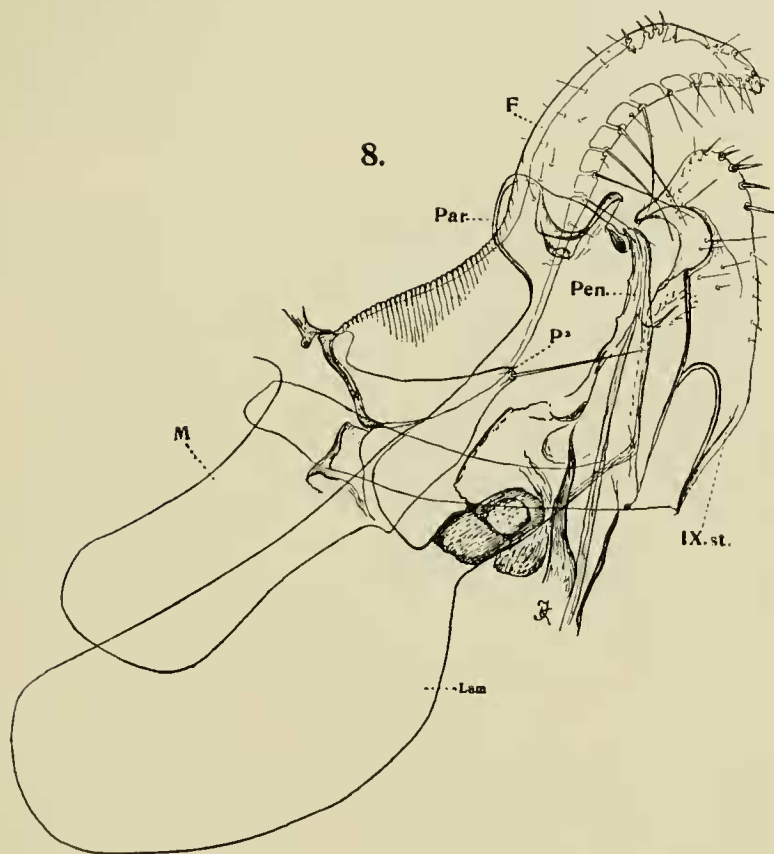
7. *Stivalius corrugis* sp. nov. (text-fig. 8).

♂. Near *St. papuanus* J. & R. 1922 (British N. Guinea), of which the ♀ only is known. At first sight one might take it for the ♂ of that species, but there are two points in its morphology which speak against that association. In the ♂♂ of *Stivalius* the dorsal median projection of tergite VII in between the two sets of antepygial bristles is shorter than, or at most as long as, in the ♀♀; in *St. corrugis* the process is longer than in the ♀ *St. papuanus*; further, the stigma-cavity of tergite VIII, which is very large in the ♀ *St. papuanus*, is not large enough in the ♂♂ here described for them to be that sex of *St. papuanus*. For these two reasons I regard these ♂♂ as representing another species. They differ very much in the genitalia from all the other known *Stivalius*. The chaetotaxy is similar to that of the ♂ of *St. novaeguineae*, the number of bristles on the thorax and abdomen being smaller than in *St. papuanus*, as is generally the case in ♂♂ as compared with ♀♀. The pronotum being shorter than in *St. papuanus* and the spines of the comb longer in comparison with the pronotum is explained by the specimens being ♂♂; the spines of the comb somewhat bluntly pointed.

Metepimerum with 11 or 12 bristles. The number of small bristles on the abdominal segments variable; on tergites II 23-27, 14, III 25-30, 15 or 16, IV 27-31, 16, V 24-30, 15 or 16, VI 24-27, 16, VII 23, 13 or 14; on sternites III 12-18, 8, IV 14-22, 8, V 14-19 (?), 8, VI 16-24, 8, VII 22-28, 8 (each side one

bristle of the posterior row small, 3 large). On VIII. st. each side about 45 to 55 bristles.

Manubrium (M) of clasper and the lamina (Lam) of penis very broad, apically broadly rounded and without a dorso-apical projection (M more evenly rounded at apex in the second specimen than in type). Ventral process P² of clasper conical. Exopodite F dorsally corrugated transversely in basal third, apex gradually and very moderately curved down, less strongly convex dorsally at the highest point



than is usual, long bristles of ventral margin slender, pale, far removed from apex ; 3 or 4 small dorsal spiniforms. Ventral arm of IX. st. broad, apex rounded, with 4 or 5 small spiniforms along the ventral margin at nearly equal distances from each other, the distance from the first (most proximal) to the last about the same as the distance from the first to the dorsal margin of the dorsal sinus. Dorsally IX. st. produced into a rather high cone, almost pointed, beak-like, proximally of this cone a rounded sinus. Paramere (Par) rounded dorsally, truncate apically ; in this hood a narrow sclerite curved distad at both ends, the ventral end projecting, somewhat resembling the head and neck of a snake.

Length : 2.9-3.0 mm., hindfemur 0.43-0.47 mm.

On *Peroryctes*, 2 ♂♂.

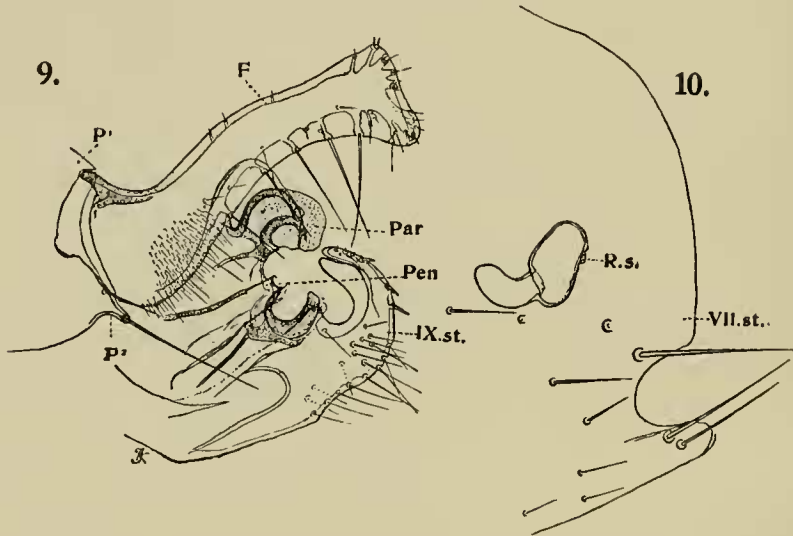
8. *Stivalius novaeguineae* Roths. 1904.

On *Peroryctes*, 2 ♀♀, one of them the largest of our series (hindfemur 0.61 mm.) *Dasyurus*, 1 ♀.—Mr. F. Shaw Mayer also obtained a ♀ in Dutch New Guinea : Weyland Mts., on *Phascogale*.

9. *Stivalius gracilentus* sp. nov. (text-figs. 9, 10).

♂♀. Close to *St. novaeguineae* and occurring on the same host. Paler and much smaller, the genitalia of the ♂ different and the ♀ with fewer bristles. Spines of pronotal comb very sharp, as in *St. novaeguineae*.

♂. Ventral angle of clasper produced into an almost cylindrical process (P²) bearing a long bristle, longer than the corresponding projection of the clasper of



St. novaeguineae. Exopodite F much less curved than in that species, its apex narrower, with both the upper and the lower angle rounded off, there being no "nose"; three long bristles at ventral margin, much thinner than in *St. novaeguineae* and farther away from apex, the most distal one about as far distant from apical margin as from dorsal margin, whereas in *St. novaeguineae* the bristles are close to apex; the row of 3 continued basad by 2 or 3 long thin bristles, upon which follows towards base a dense row of short ones; from this row dorsad on the inner surface a patch of numerous small bristles which extends about halfway to dorsal margin; dorsal apical angle with 2 minute spiniforms. The IX. st. differs especially in its apical half: apical third curved upwards, from the beginning of this curved portion to near basal third about 15 bristles forming a ventral row widened distally into a patch on the outer surface; curved apex with 3 small pale spiniforms as shown in the figure; the apex divided into a ventral lobe bearing some minute hairs and a dorsal smooth cone; corresponding to the curve of the apex of the segment there is a dorsal rounded sinus, proximally to which the segment is wide to base, at the angle of this broad portion a few minute hairs and below these a thin bristle.

♀. The specimen which I regard to be the ♀ of *St. gracilior* on account of its small size agrees closely with the ♀ of *St. novaeguineae* except in the number of bristles on the metepimerum (9) and abdominal segments (the two sides together): on tergite II 18, 14, III 19, 16, IV 17, 16, V 13, 16, VI 13, 14, VII 12, 8 (inclusive of the bristle below the antepygidial pair); on sternite III, 10, 10, IV, 9, 8, V 7, 8, VI, 8, 8, VII 13, 10; on tergite VIII (each side) 4 bristles above stigma, 10 ventrally and apically, and 3 on inside, of which the lowest is thin, long, ventro-apical, the 2 upper inner bristles not both above the upper apical outer bristle, as in *St. novaeguineae*, but the second below that outer bristle. Shape of VII. st. and spermatheca (text-fig. 10) do not present any appreciable differences, both being slightly variable in *St. novaeguineae*.

Length: ♂ 2.7 mm., ♀ 2.9 mm.; hindfemur ♂♀ 0.40 mm.

On *Peroryctes*, one pair.

10. *Stivalius abacetus* J. & R. 1922.

On *Dasyurus*, 1 ♀.—This is the second ♀ we have received; the ♂ is still unknown. As in *St. novaeguineae* and the above described *St. gracilentus*, the labial palpus has six segments, in all the other species five.
